

CLAIMS

1. A method comprising:
 - encoding a digital signal in a manner that reduces variations over time in a collective signal level of the digital signal;
 - communicating the digital signal over a plurality of segments of signal lines; and
 - transposing the signal lines between the segments of signal lines in a manner that reduces differences between interline couplings of different pairs of the signal lines.
2. A method as recited in claim 1, wherein the interline coupling of a particular pair of signal lines is represented as a function of the distances between said particular pair of signal lines over all the segments.
3. A method as recited in claim 1, wherein the interline coupling of a particular pair of signal lines is represented as a function of a summation of the distances between said particular pair of signal lines over all the segments.
4. A method as recited in claim 1, wherein the segments have approximately equal lengths.
5. A method as recited in claim 1, wherein:
 - the segments have approximately equal lengths; and

1 the interline coupling of a particular pair of signal lines is represented as a
2 function of a summation of the distances between said particular pair of signal
3 lines over all the segments.

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5 6. A method as recited in claim 1, wherein at least two of the segments
6 have different lengths.

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8 7. A method as recited in claim 1, wherein at least two of the segments
9 have different lengths, the different lengths being such that they reduce differences
10 between the interline couplings of different pairs of the signal lines.

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12 8. An interconnection for communication of a digital signal,
13 comprising:

14 three or more signal lines that traverse a plurality of segments, the signal
15 lines being configured to carry individual signals that are encoded to reduce
16 variations over time in a collective signal level of the individual signals;

17 wherein there is an interline coupling parameter associated with any
18 particular pair of signal lines that is a function of the distances between said
19 particular pair of signal lines over all the segments; and

20 wherein the signal lines are transposed between the segments in a manner
21 that reduces differences between the interline coupling parameters of different
22 pairs of the signal lines.

1 **9.** An interconnection as recited in claim 8, further comprising at least
2 three of the segments.

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4 **10.** An interconnection as recited in claim 8, further comprising a planar
5 substrate upon which the signal lines are fabricated.

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7 **11.** An interconnection as recited in claim 8, further comprising an
8 encoder that encodes the signals in a manner that reduces variations over time in
9 the collective signal level of the individual signals.

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11 **12.** An interconnection as recited in claim 8, wherein the interline
12 coupling parameter associated with any particular pair of signal lines is also a
13 function of the lengths of the segments.

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15 **13.** An interconnection as recited in claim 8, wherein the interline
16 coupling parameter associated with any particular pair of signal lines is a function
17 of a summation of the distances between said particular pair of signal lines over all
18 the segments.

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20 **14.** An interconnection as recited in claim 8, wherein the segments have
21 approximately equal lengths.

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23 **15.** An interconnection as recited in claim 8, wherein:
24 the segments have approximately equal lengths; and
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1 the interline coupling parameter associated with any particular pair of
2 signal lines is a function of a summation of the distances between said particular
3 pair of signal lines over all the segments.

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5 **16.** An interconnection as recited in claim 8, wherein at least two of the
6 segments have different lengths.

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8 **17.** An interconnection as recited in claim 8, wherein at least two of the
9 segments have different lengths, the different lengths being such that they reduce
10 differences between the interline coupling parameters of different pairs of the
11 signal lines.

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13 **18.** An interconnection as recited in claim 8, wherein the differences
14 between the interline coupling parameters are reduced to a ratio of no greater than
15 2 to 1.

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17 **19.** An interconnection as recited in claim 8, wherein the differences
18 between the interline coupling parameters are reduced to a ratio of no greater than
19 1.5 to 1.

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21 **20.** An interconnection for communication of a digital signal,
22 comprising:

23 three or more signal lines that traverse a plurality of segments, wherein
24 there is an interline coupling parameter associated with any particular pair of
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1 signal lines that is a function of the distances between said particular pair of
2 signal lines over all the segments; and

3 wherein the signal lines are transposed between the segments in a manner
4 that reduces differences between the interline coupling parameters of different
5 pairs of the signal lines.

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7 **21.** An interconnection as recited in claim 20, further comprising at least
8 three of the segments.

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10 **22.** An interconnection as recited in claim 20, further comprising a
11 planar substrate upon which the signal lines are fabricated.

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13 **23.** An interconnection as recited in claim 20, further comprising an
14 encoder configured to encode the digital signal in a manner that reduces variations
15 over time in a collective signal level on the signal lines.

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17 **24.** An interconnection as recited in claim 20, wherein the interline
18 coupling parameter associated with any particular pair of signal lines is also a
19 function of the lengths of the segments.

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21 **25.** An interconnection as recited in claim 20, wherein the interline
22 coupling parameter associated with any particular pair of signal lines is a function
23 of a summation of the distances between said particular pair of signal lines over all
24 the segments.

1 **26.** An interconnection as recited in claim 20, wherein the segments
2 have approximately equal lengths.

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4 **27.** An interconnection as recited in claim 20, wherein:
5 the segments have approximately equal lengths; and
6 the interline coupling parameter associated with any particular pair of
7 signal lines is a function of a summation of the distances between said particular
8 pair of signal lines over all the segments.

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10 **28.** An interconnection as recited in claim 20, wherein at least two of
11 the segments have different lengths.

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13 **29.** An interconnection as recited in claim 20, wherein at least two of
14 the segments have different lengths, the different lengths being such that they
15 reduce differences between the interline coupling parameters of different pairs of
16 the signal lines.

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18 **30.** An interconnection as recited in claim 20, wherein the differences
19 between the interline coupling parameters are reduced to a ratio of no greater than
20 2 to 1.

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22 **31.** An interconnection as recited in claim 20, wherein the differences
23 between the interline coupling parameters are reduced to a ratio of no greater than
24 1.5 to 1.

1 **32.** An interconnection for communication of a digital signal,
2 comprising:

3 three or more signal lines that traverse a plurality of segments, wherein
4 there is a coupling term $C(m, n, s)$ associated with any particular pair of signal
5 lines m and n over a particular segment s ;

6 wherein an interline coupling between each pair of signal lines m and n is
7 represented as a function of $C(m, n, s)$ for all segments s ; and

8 wherein the signal lines are transposed between the segments in a manner
9 that reduces differences between the interline couplings of different pairs of the
10 signal lines.

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12 **33.** An interconnection as recited in claim 32, wherein the interline
13 coupling between a pair of signal lines m and n is represented as the summation of
14 $C(m, n, s)$ over all segments s .

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16 **34.** An interconnection as recited in claim 32, wherein the coupling term
17 $C(m, n, s)$ is a function of the distance between signal lines m and n over segment
18 s .

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20 **35.** An interconnection as recited in claim 32, wherein the coupling term
21 $C(m, n, s)$ is a function of the distance between signal lines m and n over segment
22 s and of the length of segment s .

1 **36.** An interconnection as recited in claim 32, wherein the coupling term
2 $C(m, n, s)$ is a function of the distance between signal lines m and n over segment
3 s multiplied by the length of segment s .

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5 **37.** An interconnection as recited in claim 32, wherein the coupling term
6 $C(m, n, s)$ is a function the length of segment s .

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8 **38.** An interconnection as recited in claim 32, further comprising at least
9 three of the segments.

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11 **39.** An interconnection as recited in claim 32, further comprising a
12 planar substrate upon which the signal lines are fabricated.

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14 **40.** An interconnection as recited in claim 32, further comprising an
15 encoder configured to encode the digital signal in a manner that reduces variations
16 over time in a collective signal level on the signal lines.

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18 **41.** An interconnection as recited in claim 32, wherein the segments
19 have approximately equal lengths.

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21 **42.** An interconnection as recited in claim 32, wherein the differences
22 between the interline couplings are reduced to a ratio of no greater than 2 to 1.

1 **43.** An interconnection as recited in claim 32, wherein the differences
2 between the interline couplings are reduced to a ratio of no greater than 1.5 to 1.
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